DOCUMENT RESUME

ED 175 432 IR 007 598

AUTHOR Hearold, Susan Lee
TITLE Meta-Analysis of the Effects of Television on Social Behavior.
PUB DATE Apr 79
NOTE 26p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 8-12, 1979)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Anti Social Behavior; *Media Research; Prosocial Behavior; *Social Behavior; *Social Influences; Statistical Analysis; Television Research; *Television Viewing

ABSTRACT

This report statistically aggregates 230 studies on the effects of television viewing on social behavior. All empirical studies that measured a social behavior or attitude of subjects who had seen a non-educational television film or videotape and which had a program comparison group were considered appropriate. Pre-post comparison studies and heavy-viewer versus light-viewer surveys were also included, as were studies of viewer habits, attitudes, preferences, and knowledge of television programs and commercials; studies of political socialization or cognitive skills acquisition were excluded. Typically, the accepted study had viewers who watched antisocial, prosocial, or neutral programs, then were measured on direct imitation or generalized antisocial and prosocial behaviors. Conclusions of this study indicate that although fewer studies exist on prosocial effects, the effect size is much larger, holds up better under more stringent experimental conditions, and is consistently higher for both boys and girls, so that the potential for prosocial influences overrides the small but persistent negative effects of antisocial programs. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED175432

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

META-ANALYSIS OF THE EFFECTS OF TELEVISION ON SOCIAL BEHAVIOR

by

Susan Lee Hearold

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Susan Lee Hearold

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR007598

Meta-analysis of the Effects of Television on Social Behavior

Susan Lee Hearold*
Courseware, Inc.

In 1976, children from two to five years watched television 29 hours per week; about the same as adults. Teenagers watched the fewest hours, about 22 per week. The average teenager has spent more than two years of his life in front of the TV set. That is too much of one thing for anybody--no matter if the programs are innocuous, healthy or injurous. Further I find most of TV boring and I refuse to watch violent programs. But since people are watching, what are the behavioral consequences of viewing the news, drama, crime and comedy fare prevalent on today's television?

The approach taken to answer this question was to gather and aggregate statistically 230 studies on the effects of television on social behavior to determine what research can tell us.

Selection and Retrieval of Studies

The selection and retrieval of relevant studies was an integral part of this study. The decision rule for identifying acceptable studies had three components: the treatment, the outcome, and the treatment comparison. Broadly, all empirical studies that measured a social behavior or attitude of subjects who had seen a non-"educational TV" film or videotape and which had a program comparison group were considered appropriate. Pre-post comparison studies and heavy-viewer-versus-light-viewer surveys were also included. Excluded were studies of viewer's habits, and attitudes, preferences and knowledge of television programs and commercials. In addition, this research did not consider studies of political socialization or cognitive skills acquisition.

---

*This paper is based on an unpublished dissertation, Laboratory of Educational Research, University of Colorado, Boulder, 1979.

Paper presented at the American Educational Research Association Annual Meeting, San Francisco, April 8-12, 1979.

Production of this paper was supported in part by # NIE-G-78-0148.

The core of studies was identified through one of five volumes in the series by George Comstock and colleagues at Rand Corporation: Television and Human Behavior. The volume titled A Guide to the Pertinent Scientific Literature listed over 2,300 entries, concentrating on the literature from 1960 to 1975. More recent works were found through computer searches and by perusing the most recent periodicals.

Profile of the Studies

Typically the accepted study had viewers who watched antisocial, prosocial, or neutral programs, then were measured on direct imitation or generalized antisocial and prosocial behaviors. The antisocial behavior was frequently aggression, the prosocial behavior was frequently giving and helping. The infrequent but startling murders and armed thefts traced to specific incidents in television programs and films was horrifying and should influence public policy, but they are not included in this study because they are virtually never examined in controlled research. The physical violence of television research is not rape or murder. It is more an extra shove in a lunch line or a fight to resolve an argument.

The studies incorporated a full age range of subjects--with mean ages from three through seventy years--but had program segments with a median length of a quarter hour. Typically the program was a brief scene from a TV series or movie; frequently it had been edited to show or not show the behavior of interest. The outcome behavior was measured the same day as the treatment.

Coding

The variables that were coded are listed in Table 1. In addition, for each program comparison an effect size was computed and coded. The effect size was defined as: $(M_{T_1} - M_{T_2})/S$ where

M_{T_1} = Treatment 1 Mean,

M_{T_2} = Treatment 2 Mean, and

S = Average Standard Deviation of the Two Treatments.

Insert Table 1 about here

When cell means and standard deviations were provided, computation of the effect size was simple; more complex methods were required when these statistics were not reported. Which program was placed first in the numerator was determined by the comparison. For convenience, an arbitary decision was that an antisocial program always preceded a prosocial program, which in turn always preceded a neutral program.

A treatment group was a homogenous group of viewers measured on a single outcome. Thus for a study that had three treatment programs, two age groups and two outcomes, twelve effect sizes would be computed. The combination of program comparisons, subject groups and outcome measures could lead to many effect sizes. Typically it did not. Almost half the studies had one or two effect sizes.

Effect sizes were computed directly for 931 comparisons. For 112 comparisons, the reported summary statistic was a correlation. To synthesize the results across all studies, the correlations were converted to effect sizes.

Findings

The most global findings are the effects of antisocial and prosocial programs on antisocial and prosocial behavior. These were taken to be the mean effect size across all comparisons within four categories:

antisocial program effects on antisocial behavior,
prosocial program effects on prosocial behavior,
antisocial program effects on prosocial behavior, and
prosocial program effects on antisocial behavior.

The results are presented in Table 2. The program comparison of antisocial programs versus neutral programs or no program averaged a .30

Insert Table 2 about here

---

effect size for 528 comparisons; prosocial programs versus neutral programs or no program averaged a .63 effect size for 108 comparisons. The result is that the average viewer watching antisocial programs--usually violent programs--would be elevated from the 50th to the 62nd percentile in antisocial behavior--typically physical aggression. If

the viewer watched prosocial programs instead of neutral programs, he would be elevated from the 50th to the 74th percentile in prosocial behavior--typically altruism.

Aggregating the results of all the studies into a few effect sizes leads to a compact summary statement, but hides many interesting variations. For example, the studies compared numerous different categories of programming. In Table 3 the effects on antisocial behavior are broken down by program comparisons. Reported are nine categories of programming: antisocial, prosocial, mixed prosocial and antisocial, natural, interesting neutral, bland neutral, persuasive, other sources (e.g., books) and no program. In Table 3 it is shown that

---

Insert Table 3 about here

---

antisocial and bland neutral programs were compared 177 times, with an average effect size of .31 favoring antisocial programs as facilitating antisocial behavior. All the mean effect sizes have been reported as positive with the program listed first having the higher outcome measure. Comparisons not listed had no studies. In Table 4 are presented the same program comparisons for prosocial behavior.

Insert Table 4 about here

Multidimensional Scaling

Given that one category of programming, for example, antisocial, appears in several comparisons, the comparisons are linked, thus allowing for an estimate of the relative position of programs along a continuum of antisocial or prosocial behavior. To investigate this possibility and provide a visual representation of those data, multidimensional scaling analyses were performed. Prosocial and antisocial behavior were analyzed separately. In different analyses nine, seven, and five program categories were entered as a half matrix of data. Although the computer program (MDSCAL) allows missing data, when most comparisons for a program category were missing, the solution was unstable. The five category

comparison was most interpretable. The entries were analyzed weighted by the square root of n (where n was the number of effect sizes that comprised the entry) and unweighted. The five category weighted results are presented in Figures 1 and 2. The broken line drawn through the points identifies the most interpretable one dimensional axis.

Insert Figures 1 and 2 about here

The solution for antisocial behavior has antisocial programs at one end and prosocial programs at the other with "no program" in the middle. This result is intuitively pleasing. That mixed programing is closer to antisocial and neutral closer to prosocial is also reasonable.

Intuitively, one might expect that the prosocial behavior solution would look the same. Figure 2 shows that it did not. Prosocial programs stand alone, with all other programing, including "no program" bunched together. Note that antisocial programs are closer to prosocial than are neutral programs.

Comparison Effect Sizes

For convenience and to keep the number of comparisons reasonably large in most of the remaining analyses, the program comparisons were collapsed into three categories: antisocial vs. other, antisocial vs. prosocial, and prosocial vs. other. Mixed, neutral and no program were combined into "other."

In Table 5 are reported statistics about the six distributions created from the three collapsed program comparisons and two--antisocial and prosocial--behaviors. Repeated are the mean effects for antisocial programs on antisocial behavior of .30 and prosocial programs on prosocial

---

Insert Table 5 about here

---

behavior of .63. The direct comparison of antisocial programs with prosocial programs demonstrates an inhibiting effect of prosocial programs on antisocial behavior ($\overline{ES}$ = .65, n = 40) more than equivalent to the disinhibiting effects of the antisocial program. The additional comparsion

of prosocial versus other programs on antisocial behavior ($\overline{ES}$ - .20, $\underline{n}$ = 48) results in placing neutral programs about equal distance between prosocial and antisocial programs for their effects on antisocial behavior.

The effects of antisocial programs on prosocial behavior are less clear. The effect size for the comparison of antisocial versus prosocial programs ($\overline{ES}$ = .38, $\underline{n}$ = 33) is smaller than the effect size for prosocial versus other programs ($\overline{ES}$ = .63, $\underline{n}$ = 108) suggesting that antisocial programs may convey more prosocial content than neutral or no programs. However, the zero effect size for antisocial versus other programs does not uphold this conclusion.

The distributions of effect sizes within program comparisons are skewed, positively for positive average effects and negatively for negative average effects. To understand better the central value of effect sizes, medians were computed. The effect of antisocial programs on antisocial behavior shows a median effect size of .22; prosocial programs on prosocial behavior shows a median effect size of .39. Either medians or trimmed means are important central tendency statistics for interpreting the average effect sizes. The effects of programming differences are less dramatic than the means suggest.

It should be noted that some of the difference in effect size for prosocial and antisocial outcomes may be understood by the intent of the program. Antisocial programs were not created to teach aggression, but rather had entertaining and large audiences as goals; prosocial programs have frequently declared a prosocial theme as one goal. A second moderating variable is the difference in societal acceptance of antisocial and prosocial behaviors. In more ecologically valid studies, antisocial behavior may be reduced because of opposing social sanctions, whereas prosocial behaviors are lessened because the specific skills that were acquired are not generalized very well.

Sex and Age Differences

Most of the studies on antisocial programs have been conducted with children and male college students, only a few with women college students and adults. The effect sizes across age groups suggest that antisocial programs continue to influence people after childhood ($\overline{ES}_{Children}$ = .28,

n = 426; $\overline{ES}_{College}$ = .36, n = 74; $\overline{ES}_{Adult}$ = .35, n = 28).

The studies of the effects of prosocial programs on prosocial behavior have been conducted primarily with viewers younger than seven. The potential for prosocial programs aimed at older viewers, or for the effects of present programing on prosocial behaviors in older viewers is largely unknown. The little available data show a drop in prosocial effects for older viewers ($\overline{ES}_{Children}$ = .65, n = 93; $\overline{ES}_{College}$ = .28, n = 7; $\overline{ES}_{Adult}$ = .37, n = 8).

The sex differences in antisocial program influence for children ages three through eighteen are better determined. Averaged over effect sizes, boys showed an effect size of .29, girls of .27. The sexes are equivalent (or girls higher) when young, then the effect on antisocial behavior for girls drops while for boys it drops then rises to its initial level again in adolescence. These data are graphed in Figure 3. Considering only physical aggression, the children are equivalent when under nine or ten years old, then the influence of violent programs increases for boys and decreases for girls. These data appear in Figure 4.

Insert Figures 3 and 4 about here

These data do not support the conclusions of reviewers such as Comstock et al. (1978) that younger boys are more influenced by television than young girls or older children. When young, boys and girls are equally influenced; when older, boys are more influenced than girls and probably as affected as when they were young.

There are too few comparisons to determine age differences in prosocial behavior, but there are data demonstrating that girls can be highly susceptible to prosocial programs. Boys are also affected, but less so ($\overline{ES}_{Girls}$ = 1.13, n = 20; $\overline{ES}_{Boys}$ = .51, n = 31).

Ecological Validity

The ecological validity of the studies, many of which are laboratory experiments, is of prime interest for predicting the effect of antisocial and prosocial programs in the milieu of the home viewer. For studies that used realistic television programs, the antisocial effect size equaled .20

and the prosocial effect size equaled .62. The effects of realistic prosocial programs continue to remain strong, while realistic antisocial programs have less effect than the average antisocial comparison. Selecting studies given the highest rating in the global rating of ecological validity results in an antisocial program effect size of .23 and a prosocial effect of .36. Prosocial program effect sizes are correlated with the generalizability of the outcome measure (r = .33, p < .011, n = 103). The more dissimilar the program content and the measured outcome behavior, the less effect the program has had. Antisocial programs tend to have demonstrated more generalizability (r = .11, p < .05, n = 351). The initially stated mean effect sizes for antisocial and prosocial programs should be tempered with the reduced effect sizes when other factors are considered.

Comparative Effects for Other Social Interventions

Sesame Street and Electric Company. One way to interpret the magnitude of the effect size is to compare it to other effect sizes, particularly for effects that many people have external references for how strong the treatment was. One TV program that the American public has enthusiastically endorsed is Sesame Street. Effects of Sesame Street on social behavior, such as cooperation, were included in the meta-analysis. However, the primary aim of Sesame Street, particularly the first year, was cognitive skills instruction--prereading, language, and math. These cognitive outcome measures were not considered in the meta-analysis, but are considered by many parents and preschool teachers to be substantial.

From the Educational Testing Service (ETS) evaluations, effect sizes were computed for Sesame Street viewed at home and Electric Company, viewed in school. The effect sizes were about .4 to .5 for cognitive skills, slightly larger than the average combined effect size of antisocial programs on antisocial behavior and prosocial programs on prosocial behavior in the meta-analysis of .37, about the same as the effects of the most generalizable prosocial studies ($\overline{ES}$ = .36) and higher than the antisocial program studies ($\overline{ES}$ = .23).

Other Meta-analysis Studies. Standard deviation effects--effect sizes--have been computed for other types of treatment, as well.

In Table 6 are some of these effects. Compared to other treatments, the unintentional effect of antisocial programs is on the small side, while the more intentional effects of prosocial programs is higher than some accepted educational and medical treatments. The comparative treatments have generally been tested in the field, thus the more ecologically valid effect sizes for television may be more appropriate estimates. Then the effects of antisocial programs are very low, although still not negligible. Prosocial effects are about typical for many educational treatments.

Insert Table 6 about here

Conclusion

The major distinction in the global conclusions of many reviewers and this study may be the hesitation or qualification I would convey about the present and potential effects of television violence and the emphasis I would place on the strong effects of prosocial programs. Although fewer studies exist on prosocial effects, the effect size is so much larger, holds up better under more stringent experimental conditions and is consistently higher for both boys and girls, that the potential for prosocial overrides the small but persistent negative effects of antisocial programs. The quantification of the effect sizes allows this type of statement. Others may disagree with the conclusion, feeling that the potential for any negative effects on even a single viewer is too much; however, the magnitude is there to be discussed which seems more useful than a probability statement about existence or non-existence of the phenomena.

References

Comstock, G., Chaffee, S., Katzman, N., McCombs, M. & Roberts, D. Television and human behavior. New York: Columbia University Press, 1978.

Comstock, G. & Fisher, M. Television and human behavior: A guide to the pertinent scientific literature. Santa Monica: The Rand Corporation, 1975.

Glass, G.V. & Smith, M.L. Meta-analysis of research on the relationship of class-size and achievement. Evaluation and Policy Analysis, 1979, 1, in press.

Hartley, S.S. Meta-analysis of the effects individually paced instruction in mathematics. Unpublished doctoral dissertation, University of Colorado, 1977.

Hearold, S. Meta-analysis of the effects of television on social behavior. Unpublished doctoral dissertation, University of Colorado, 1979.

Miller, T.I. The effects of drug therapy on psychological disorders: behavior. Unpublished doctoral dissertation, University of Colorado, 1979.

Miller, T.I. The effects of drug therapy on psychological disorders: A meta-analysis. Unpublished doctoral dissertation, University of Colorado, 1978.

Smith, M.L., Glass, G.V. & Miller, T.I. Benefits of psychotherapy. Johns Hopkins University Press, in press.

Table 1

Variables Coded for Each Comparison (Effect Size)

PUBLICATION INFORMATION

Year of Publication

Source: Book, Journal, Thesis, ERIC, Unpublished

Researcher Affiliation: University Departments of Sociology/ Behavioral Sciences, Communications/Speech/Journalism/ Marketing, Psychology/Psychiatry, Education; Consumer Organization; Public Television; Commercial Television; Government; Other

Country: U.S., Canada, Great Britain, Continent, Australia/ New Zealand, Japan/China/Formosa, India, Other

Number of Comparisons (Effect Sizes) for the Reference

VIEWER INFORMATION

Total Number of Subjects
Age Range
Mean Age
Socio-Economic Status: 1 = High to 5 = Low, Mixed
Ability: 1 = High to 5 = Low, Mixed
Ethnicity: Anglo, Black, Chicano, Other, Mixed
Sex: Male, Female, Both
Aggressive Predisposition: 1 = High to 5 = Low, Mixed
Institutionalized: Yes, No
Homogeneity of Viewers in this Comparison: 1 = Low to 9 = High

COMPARISON INFORMATION

Program Comparison: Antisocial vs. Antisocial, Antisocial vs. No Program, Antisocial vs. Neutral, Antisocial vs. Mixed, Antisocial vs. Other, Antisocial vs. Prosocial, Prosocial vs. No Program, Prosocial vs. Neutral, Prosocial vs. Mixed, Prosocial vs. Other, Neutral vs. No Program, etc.
Outcome Behavior: Antisocial, Prosocial, Neutral.

Table 1 (Continued)

PROGRAM INFORMATION

Antisocial Program: Western, Cartoon, News, Drama, Crime, Sports, Comedy, War, All in the Family, Mixed Movies, Commercials, Acted Role/Modeling, Other.

Prosocial Program: Mister Rogers' Neighborhood, Sesame Street/ Electric Company, Animal Story, Comedy, Children's Program, Public Service Ads, Public Service Programs, Big Blue Marble, Patrik and Putrik, Acted Role/Modeling, Other.

Neutral Program: Animal Story, Comedy, Children's Program, Sports, Travel, Nature, Informational/News, Cartoon, Mixed Movies, Game Shows, Other.

Production: Live, Animated, Mixture

Realism of Program: TV Program, Modeling of Specific Behaviors

Length of Program(s) in Hours

Length of Treatment in Days

Reward or Consequences: Antisocial Behavior Rewarded, Antisocial Behavior Punished, Prosocial Behavior Rewarded, Prosocial Behavior Punished, Neutral.

Justification for Antisocial Behavior: Yes, No, Neutral

OUTCOME INFORMATION

Antisocial Behavior: Physical Aggression, Verbal Aggression, Passivity, Stereotyping, Theft, Rule Breaking, Materialism, Family Interaction Reduced/Less Socialization, Unlawful Behaviors, Pathological Behavior, Perceive World as More Dangerous than Reality, Approval of Aggression/ Willingness to Use, Perceive Self as Powerless in Society, Aggressive Driving, Other

Table 1 (Continued)

Prosocial Behavior: Cooperation, Altruism, Persistence, Sympathy, Resists Temptation, Following Norms, Friendly Play, Creative Play, Engages in Sports and Other Social Activities, Love/Affection, Acceptance of Others, Respect for Law and Government, Stops Smoking, Buys Books, Antistereotyping, Demonstrates Safety or Ecology.

Neutral Behavior: Physiological Arousal, Duplicates Neutral Modeled Behavior, Accepts Facts Conveyed by TV Announcer, Buys Specific Brand of Advertised Product rather than Unadvertised Brand.

Viewer Frustrated: Yes, No

How Behavior Was Measured: Observation, Questionnaire, Projective Test, Testing with Apparatus.

Behavioral Rating: 1 - Most Antisocial to 7 - Most Prosocial

Task Realism: 1 = High to 5 = Low

DESIGN INFORMATION

Task Reactivity: 1 = Low to 5 = High

Similarity of Task and Program Content 1 = High to 5 = Low

Assignment to Treatment: Random, Pre-post, Matched, Uncontrolled

Global Internal Validity: 1 = Low to 5 = High

Global Ecological Validity: 1 = Low to 5 = High

RESULTS INFORMATION

Significance of Reported Statistic: Yes in Opposite Direction, Yes, No, Unknown

Support of Researcher's Hypothesis: Yes, No, Unknown

Components of Effect Size: Means and Standard Deviations, Means and MS_w, Means and F, Means and p, F or T, p to F or t, Probit, Nonparametrics, Post-hoc tests, Estimates, Other.

Table 2

Summary of Comparison and Study Level Effects Sizes

	Comparison Level				Study Level[a]			
	N	$\overline{ES}$	Median	$\overline{ES}_{Weighted\sqrt{N}}$	N	$\overline{ES}$	Median	$\overline{ES}_{Trimmed}$[b]
Antisocial Behavior								
Antisocial vs. Other	528	.30	.22	.25	148	.41	.32	.34
Prosocial vs. Other	48	-.20	-.13	-.20	25	-.12	-.11	-.16
Prosocial Behavior								
Antisocial vs. Other	152	-.008	.000	.04	47	.06	.07	.04
Prosocial vs. Other	108	.63	.39	.54	42	.74	.41	.48

[a]Study effect sizes are the average of all comparsions within a study that measure the same category of outcomes with the same category of program comparison. A single study may have two or more such "study level" effect sizes. The study level effect sizes do not include 28 partial correlation effect sizes.

[b]$\overline{ES}_{Trimmed}$ had 10% of the effect sizes removed from the top and bottom of the distribution, then the mean recomputed.

Table 3

Effect Sizes of Program Comparisons for Antisocial Behavior

Program Comparison	Mean Effect Size	Standard Error of Mean	Standard Deviation	Number of Effect Sizes
Natural vs. Bland Neutral	1.04	.40	.56	2
Natural vs. Prosocial	.74	--	0	1
Persuasive vs. No Program	.72	.30	1.07	13
Antisocial vs. Prosocial	.65	.14	.89	40
Bland Neutral vs. No Program	.51	.42	1.27	9
Bland Neutral vs. Prosocial	.49	.39	1.40	13
Natural vs. Antisocial	.42	--	0	1
Antisocial vs. No Program	.33	.05	.61	168
No Program vs. Interesting Neutral	.33	.24	.83	12
Antisocial vs. Bland Neutral	.31	.06	.80	177
No Program vs. Prosocial	.31	.23	.72	10
Antisocial vs. Interesting Neutral	.22	.07	.52	59
Mixed Pro & Anti vs. No Program	.21	.08	.65	64
Antisocial vs. Other Sources	.16	.16	.47	9
Antisocial vs. Antisocial	.15	.06	.54	74
Natural vs. No Program	.15	.11	.65	34
Mixed Pro & Anti vs. Prosocial	.13	--	0	1
Antisocial vs. Mixed Pro & Anti	.06	.09	.24	7
Prosocial vs. Interesting Neutral	.01	.14	.20	2
Total				696

Note: The program listed first showed a stronger effect on antisocial behavior than the program listed second. Three comparisons among arousing (erotic) programs ($\overline{ES}$ = .27) were omitted.

Table 4

Effect Sizes of Program Comparisons for Prosocial Behavior

Program Comparison	Mean Effect Size	Standard Error of Mean	Standard Deviation	Number Effect Sizes
Prosocial vs. Interesting Neutral	1.12	.14	1.52	14
Prosocial vs. Other Sources	1.09	--	0	1
Prosocial vs. Bland Neutral	.71	.14	.73	27
Interesting vs. Bland Neutral	.66	--	0	1
Prosocial vs. No Program	.58	.10	.76	50
Antisocial vs. Natural	.43	--	0	1
Prosocial vs. Antisocial	.38	.15	.87	33
Antisocial vs. Antisocial	.25	.35	.92	7
Bland Neutral vs. Other Sources	.20	.22	.44	4
No Program vs. Antisocial	.17	.20	1.01	26
No Program vs. Natural	.13	.14	.49	12
No Program vs. Interesting Neutral	.13	.21	.48	5
Mixed Pro & Anti vs. No Program	.12	.05	.38	62
Prosocial vs. Natural	.12	--	0	2
Interesting Neutral vs. Antisocial	.11	.29	.86	9
Antisocial vs. Other Sources	.11	.08	.19	5
Bland Neutral vs. Antisocial	.08	.16	.96	36
Mixed Pro & Anti vs. Antisocial	.01	.24	.47	4
Total				299

Note: The program listed first has a stronger effect on prosocial behavior than the program listed second.

Table 5

Distribution Statistics of Program Comparison Effect Sizes

	Antisocial Behavior			Prosocial Behavior		
	Anti vs. Other	Anti vs. Pro	Pro vs. Other	Anti vs. Other	Anti vs. Pro	Pro vs. Other
N_{ES}	528	40	48	152	33	108
Mean	.30	.65	- .20	- .008	- .38	.63
Median	.22	.57	- .13	.000	- .31	.39
Standard Error	.03	.14	.16	.06	.15	.09
Standard Deviation	.69	.89	1.08	.72	.87	.88
Kurtosis	4.70	.62	4.25	10.72	2.3	9.78
Skewness	1.23	1.05	.06	-2.07	-.05	2.29
Minimum	-1.81	-.61	-3.35	-3.96	-2.73	-1.48
Maximum	3.71	2.93	3.64	1.89	2.16	5.61
.95 C.I.	.24 to .36	.36 to .93	-.52 to .11	-.12 to .11	-0.68 to -.07	.46 to .79
Weighted ES[a]	.25	- .57	- .20	.04	- .26	.54
$N_{Subjects/ES}$	238	52	50	432	47	103
Median $N_{Subjects/ES}$	52	40	33	136	42	39

Note: The effect size (ES) was computed by subtracting the mean of the program listed second in the comparison from the mean of the program listed first, then dividing by the average of the two standard deviations (or an estimate of the pooled standard deviation). A positive ES indicates that the first program had a higher mean on the outcome behavior than the second program.

[a] $\frac{\Sigma ES\sqrt{N}}{\Sigma\sqrt{N}}$

Table 6

Effect sizes for Various Educational and Medical "Treatments"

"Treatment"	$\overline{ES}$
Gender on height	1.20
One year of elementary school on reading	1.00
Psychotherapy (Smith, Glass, & Miller, in press)	.85
*Prosocial programs on prosocial behavior	.63
Tutoring on mathematic skills (Hartley, 1977)	.60
Teacher expectations of greater ability on learning and ability	.50
Drug therapy on psychotics (Miller, 1978)	.40
Computer-based instruction on mathematic skills (Hartley, 1977)	.40
*Most ecologically valid studies of prosocial programs on prosocial behavior	.36
*Antisocial programs on antisocial behavior	.30
*Most ecologically valid studies of antisocial programs on antisocial behavior	.23
Effects on achievement of reduction of school classroom from 30 to 15 children (Glass & Smith, 1979)	.15

Note. Adapted from Benefits of Psychotherapy by M. L. Smith, G. V Glass, & T. I Miller. Johns Hopkins University Press, in press.

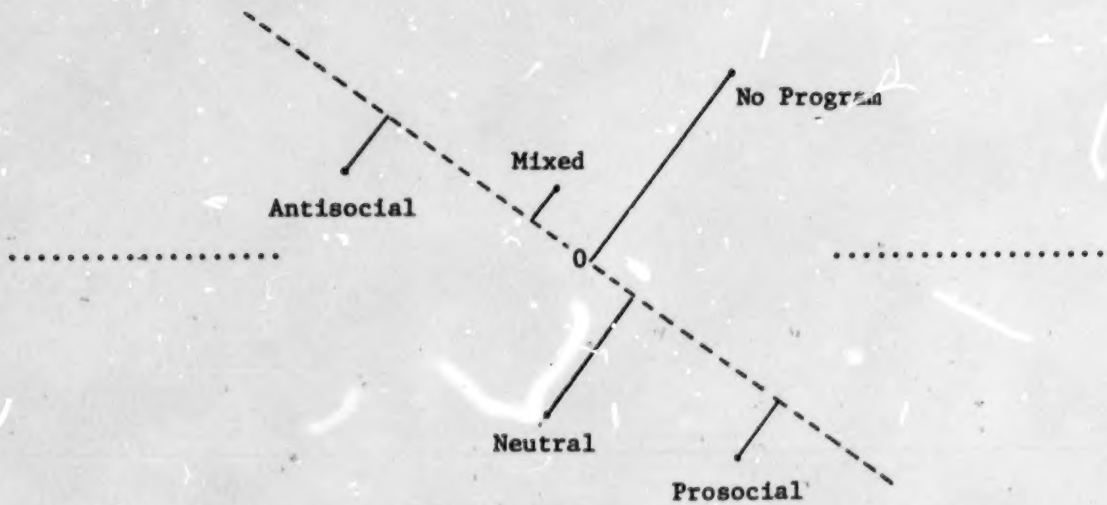


Figure 1. Multidimensional Scaling of Programing Affecting Antisocial Behavior

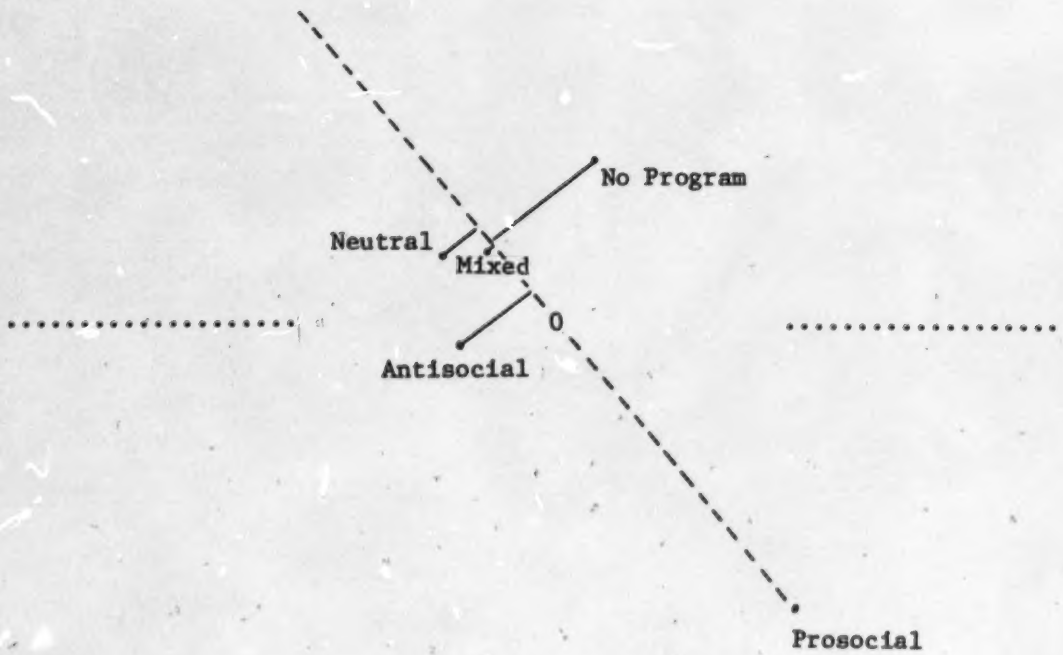
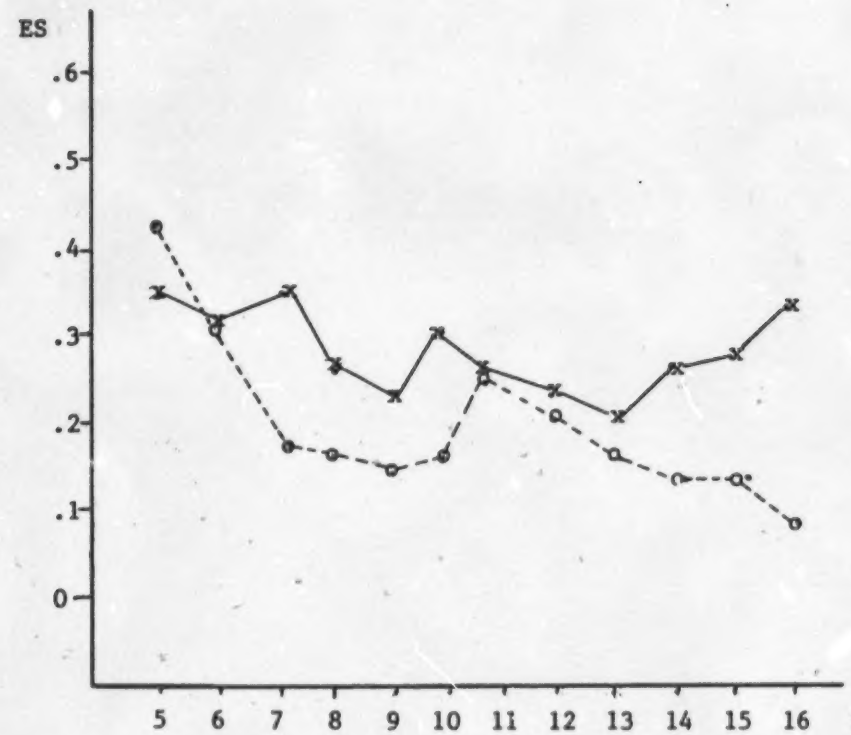


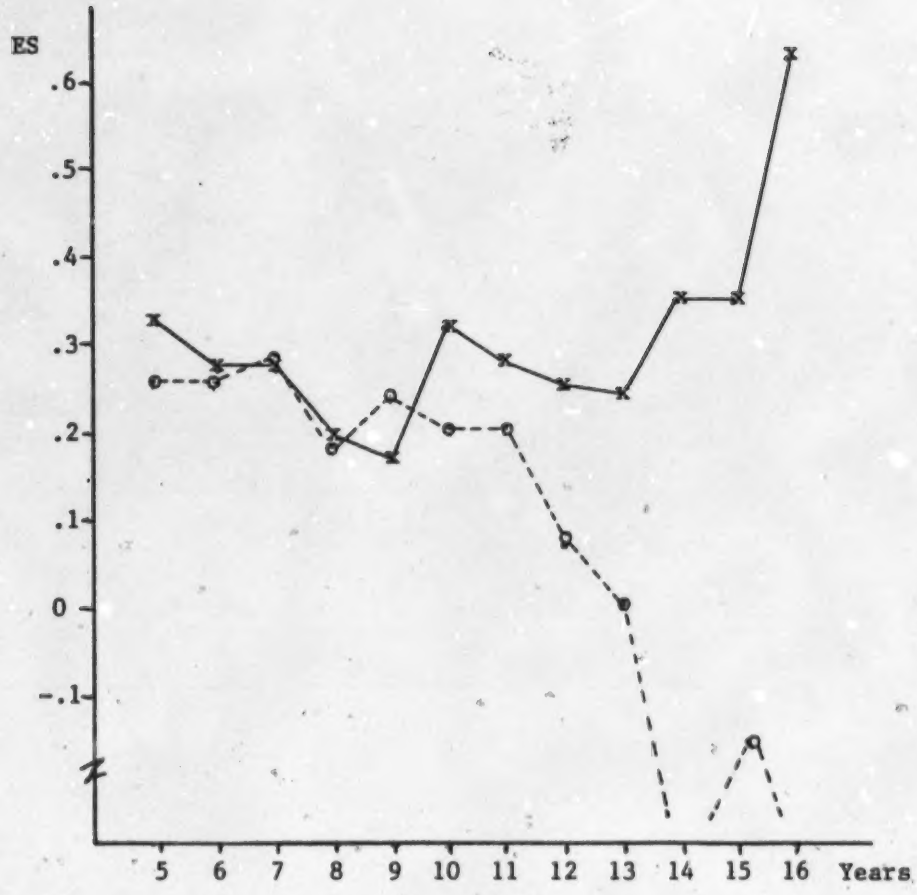
Figure 2. Multidimensional Scaling of Programing Affecting Prosocial Behavior



x—— Boys	ES	.34	.32	.34	.26	.23	.30	.26	.23	.20	.26	.27	.33
	N	55	73	66	67	69	75	90	84	99	96	84	51
o--- Girls	ES	.43	.30	.17	.16	.14	.16	.24	.20	.17	.13	.13	.08
	N	26	36	26	31	35	39	33	31	35	31	22	18
Mixed	ES	.37	.54	.60	.59	.55	.51	.34	.25	.14	.09	-.01	-.10
Group	N	22	40	40	46	48	58	48	48	45	49	42	36

Note. The points at each year are averages of five years (±2 years of the specified year).

Figure 3. Graph of Antisocial Behavior Effects by Age and Sex



x—— Boys	ES	.32	.27	.27	.20	.17	.32	.28	.25	.24	.35	.35	.63
	N	35	41	35	37	42	38	50	42	41	34	34	16
o--- Girls	ES	.26	.26	.28	.19	.23	.20	.20	.07	.00	-.35	-.16	-.45
	N	18	22	15	17	23	19	17	12	14	7	6	4
Mixed	ES	.30	.34	.51	.47	.41	.41	.28	.28	.04	.04	-.10	-.15
Group	N	8	12	7	12	11	11	10	10	4	4	8	5

Note. The points at each year are averages of five years (±2 years of the specified year).

Figure 4. Graph of Physical Aggression Behavior Effects by Age and Sex